

SD11
A512
No 12

FOREST SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE
ALLEGHENY FOREST EXPERIMENT STATION*

Technical Note No. 12

LIBRARY COPY
FOREST & RANGE
EXPERIMENT STATION

HEIGHT GROWTH OF HEMLOCK AND HARDWOOD SEEDLINGS IN A
VIRGIN STAND ON EAST TIONESTA CREEK

7. 173

A total of 170 saplings of important tree species growing on sample plots in virgin hemlock-hardwood stands on East Tionesta Creek were collected during 1934 and sectioned to determine the rate of seedling growth in such stands. Growth rings were carefully counted in the office, often with the aid of razor sections stained and observed with a compound microscope. The ring counts were made at the base of the stem and at successive 1-foot intervals above this point, to give the number of years required to reach given heights. The average age required to reach each height was then computed and plotted to form a curve from which the following table has been read.

Number of years required for seedlings of average
growth rate to reach various heights.

Species	Height - feet								:Basis
	:	:	:	:	:	:	:	:	: No.
	: 1	: 2	: 3	: 4	: 4.5	: 5	: 6	: 7	: trees
Hemlock	10	16	21	25	27	28	31	34	34
Beech	6	10	14	17	18	20	22	25	43
Sugar Maple	7	11	14	18	19	21	24	26	28
Red Maple	7	10	13	16	18	20	23		21
Black Birch	4	7	8	10	10	11	12		13
Black Cherry	4	6	8	9	10	11	12	14	12
White Ash	6	9	11	13	14	15			11
Yellow Birch	3	6	8	10	12	13	15	17	8
									170

The results of these seedling analyses indicate that the average height growth of seedlings of all species is very slow under virgin forest conditions. Hemlock, beech, and the maples require the greatest number of years to reach given heights; these are our most tolerant species. Where

*Maintained at Philadelphia, Pennsylvania, in cooperation with the University of Pennsylvania.

found in the virgin forest, sapling black and yellow birch, black cherry, and white ash are also slow growing but require somewhat fewer years to reach given heights.

Use may be made of this table in correcting ages counted on the stump, or from borings at breast height, to total age in the case of old-growth trees or holdovers which originated under virgin forest conditions. It should not be used for second-growth trees which have originated after logging or fire, or for trees of stump sprout origin.

A. F. Hough,
Assistant Silviculturist,

Allegheny Forest Experiment Station.

June 1, 1936

LIBRARY COPY
ROCKY MT. FOREST & RANGE
EXPERIMENT STATION